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Using Behavioral Science to Reduce Crime and School Dropout

Jens Ludwig

How can we effectively reduce youth crime? Many traditional social policy interventions that aim to do so are very costly and tend to not be very effective. But new insights from behavioral science provide new opportunities to re-imagine social policies. One key lesson from behavioral science is that human decision-making is something less than perfect. The consequences of this fact can be particularly substantial for economically disadvantaged youth living in challenging social circumstances. Suggestive evidence is found that relatively low-cost programs focused on helping young people slow down decision making in high-stakes situations can help reduce violence involvement and improve schooling outcomes.

Together with his colleagues, Jens Ludwig has studied the effect of these interventions. This SNS Research Brief summarizes their findings. For more details, please see the full academic article Heller et al. (2017).

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”Both programs draw insights from behavioral science to teach students how to slow down and reflect on their thinking in high-stakes situations.”

Crime is a costly social problem, and also an enormously complicated one. Some of the most obvious causes are fundamental ‘root causes’ of crime, entrenched societal ills such as poverty, lack of jobs, lack of quality schooling, and segregation. These root causes have been enormously difficult to substantially change in many developed and developing countries, leaving some observers to fear the problem of crime and violence is ‘too big to fix.’

But ‘root causes,’ as important as they are, may not be the whole story. While people’s situations do indeed exert powerful influences on behavior, situation is not destiny – being born into even the most disadvantaged circumstances does not determine whether someone will engage in crime or violence. Indeed the majority of people in even the most distressed neighborhoods have their high school degrees and go to work and avoid involvement in crime and violence. They have developed successful strategies to navigate their challenging circumstances, recognizing that the more challenging the neighborhood environment the greater the difficulty of successful navigation. Could public policy help strengthen people’s ability to navigate difficult circumstances, by addressing some of the most common judgment and decision-making challenges that affects all of us – but have the most severe consequences in the most distressed neighborhoods? Could decision-making be amenable to policy intervention and help reduce crime and violence as society continues to try to address root causes? If the answer is yes, given the important influence crime and violence have on the flight of people and businesses, then any successful efforts to address decision-making could indeed create an important tailwind for addressing root causes.

This brief summarizes the results of three large-scale randomized controlled trials (RCTs) of programs that aim to help youth slow down their decision-making and thereby reduce their likelihood of engaging in violence. The evaluations compared the outcomes for youths who were offered the program to those who were not.

The first program, called Becoming a Man (BAM), was administered in Chicago schools and evaluated during two separate RCTs. The second program, which had similar content to BAM, was administered in a Chicago-area Juvenile Temporary Detention Center (JTDC), where high-risk juvenile arrestees are taken for pretrial detention.

Both programs draw insights from behavioral science to teach students how to slow down and reflect on their thinking in high-stakes situations. They are *not* told how to behave in a given situation, but are instead taught how to examine whether they’ve construed the situation correctly and considered all relevant options and their consequences. Both programs have large effects for both crime and schooling outcomes. Specifically the BAM programs are shown to:

› reduce total arrests by 28–35 percent
› reduce violent crime by 45–50 percent
› increase school engagement
› increase graduation rates by 12–19 percent.

The third, BAM-inspired program (carried out in the juvenile temporary detention center):

› reduced readmission to the detention center by 21 percent.

Following the results of this evaluation, the BAM program expanded across over 100 schools in Chicago and Boston. In 2014, President Barack Obama launched the My Brother's Keeper initiative to support programs like BAM nationwide.

Many traditional social policies that are shown to reduce crime, such as improved schooling and early childhood education, are already well-developed and widespread in Sweden. Under the principal of diminishing marginal returns, low-cost programs that focus on the decision-making process of youth may therefore have larger benefit-cost ratios than further investments in traditional social policies.

Program description

STUDIES 1 AND 2: BECOMING A MAN

The first two RCTs tested two slightly different versions of the BAM program, but the basic structure of the program, in which students participated in weekly one-hour-long group sessions during the school day, remained the same. Students were randomized to either participate in the experiment (the treatment group) or not (the control group). Outcomes across the two groups were compared to see what difference the program made, if any.

For the first RCT, 18 elementary and high schools were selected in low-income, racially segregated areas in Chicago where violent crime is disproportionately concentrated. 2,740 youth were randomized to a one-year program in the 2009–2010 academic year and received 27 hour-long weekly group sessions.

The second RCT stretched the curriculum out over two years in 2013–2014 and 2014–2015 with 2,064 youth. It offered up to 45 sessions, which allowed providers to go into more depth on each topic.

"In both BAM studies, participants faced significant social disadvantages."

In both BAM studies, participants faced significant social disadvantages. Despite only being, on average, 15 years old at the start of the program, many had been previously arrested (about 36 percent in study 1 and 23 percent in study 2). About 20 percent had learning disabilities in study 1 and about 17 percent in study 2.

About half of those randomized to the BAM programs ended up participating[1]. Participants in the first study attended an average of 13 sessions. For study 2, participants attended an average of 17 sessions during the first year and 21 sessions during the second year. A small share of those who were assigned to the control group received program services in both studies, but this crossover is not a major concern; it implies that the significant positive effects are, if anything, an underestimation of the true positive effects of the program.

BAM teaches participants how to think more deliberately about their situations rather than telling youth how they should act. The program was developed by the Chicago nonprofit Youth Guidance and was mainly carried out by college-educated men with training in psychology or social work.

The program incorporates standard elements of a common behavioral

1. Participation is defined as attending at least one program session. For results on the intention to treat, please see the full academic article.

science intervention sometimes called cognitive behavioral therapy (CBT)[2], including, for example, a "check-in"[3] at the start of each session. The program includes the following activities:

› Immersive/experiential activities (e.g., group exercises and demonstrations)
› Reflective/introspective activities (e.g., check-ins and discussion of what the youth are doing well and areas where they need to improve)
› Role-playing (e.g., participants imagine a conflict, discuss why the conflict came about, and examine thinking distortions that might have made the conflict worse)
› Skill-building (e.g., channeling anger productively)
› Stories and discussion (e.g., movies and stories that offer illustrations of decision-making)

The program also included day trips to local colleges and a mentoring component.

STUDY 3: JUVENILE TEMPORARY DETENTION CENTER

The third program was carried out in some but not other residential units within the juvenile temporary detention center.[4] Youth are held in the juvenile temporary detention center for an average of three to four weeks until their cases are settled in court, necessitating an abbreviated version of BAM. Our sample consists of the 2,693 male detainees who entered the JTDC between 2009 and 2011 and for whom we have at least 18 months of follow-up data. The random assignment of units was not binding for some youth[5], but being randomly assigned to a treatment unit considerably increased the likelihood of placement in a treatment unit.

The average youth in this sample had been previously arrested eight times and was, on average, about 16 years old at the start of the program. The average unemployment rate in their neighborhoods was about 19 percent.

The JTDC program includes a daily program that had many elements similar to BAM as well as a token economy for good behavior inside the facility and increased educational requirements for staff.

"The skill-building activities are designed to help youth slow down their thinking and use anger expression and relaxation techniques in stressful situations."

Compared to the BAM program, the JTDC program is more "tell, not show," as there are no immersive or experiential activities. However, it emphasizes the same "skill-building" activities as BAM, designed to help youth slow down their thinking and use anger expression and relaxation techniques in stressful situations. The program also includes elements like setting goals and interpersonal problem solving.

The program includes the following activities:

› Reflective/introspective activities (e.g., thinking reports when misbehavior causes a "time-out")
› Skill-building (e.g., channeling anger productively)

2. Beck (2011).

3. Youth sit in a circle with the counselor, who reflects on how things in his life are going in various domains. The youth then follow suit.

4. The variation in treatment was due to a reform that halted halfway.

5. Because of safety or operational reasons, or because they had been assigned to a treatment unit inside the JTDC previously.

› Stories and discussion (e.g., optical illusions and imagined scenarios that help illustrate the program's lessons about navigating ambiguity)
› Other (e.g., students use the framework to focus on situations involving drugs and alcohol)

Data

SCHOOLING

In study 1 and 2, we use longitudinal student-level records from Chicago Public Schools (CPS) to examine schooling outcomes. For study 1, our data covers the program year as well as five follow-up years, and for study 2 our data only covers the two program years. We generate a variable that we call "school engagement," which consists of three schooling outcomes (grade point average, days present in school, and enrollment status at the end of the year). For study 1, where we have longer follow-up data, we also look at impacts on high school graduation rates.

CRIMINAL BEHAVIOR

We measure criminal behavior with electronic arrest records from the Illinois State Police (ISP) in study 1 and arrest data from the Chicago Police Department (CPD) in study 2. For study 3, we use readmission into the JTDC facility itself as our main outcome variable for criminal behavior.

Results from the Three Randomized Controlled Trials

RESULTS OF STUDY 1 AND 2

The design of an RCT allows us to see the effect of an intervention by estimating the difference in outcomes between the control group and treatment group. Because not every student assigned to the treatment group actually participated in the program (for a variety of reasons), I focus here on the effect of participating in the program, also known as the effect of "treatment on the treated."[6]

Schooling

School engagement increased in both study 1 and 2 by the end of the program period. Participation in BAM improved school engagement by 0.14 standard deviations in study 1 and by 0.10 standard deviations in study 2. Graduation rates also increased by up to 19 percent (as estimated in study 1, where we have follow-up data), but statistical significance depended on how graduation was defined.[7]

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6. For the effect of being offered the chance to participate, please see the full academic article.

7. The estimate of the effect of participation is significant at a 10 percent level for the measure "Graduation on time". The estimate is not statistically significant for "Ever graduated" when transfers are assumed to be dropouts. The estimate is statistically significant at a 5 percent level for "Ever graduated" when transfers are assumed to be graduates.

Criminal behavior

The effects on arrests are similar across study 1 and 2. Participation in BAM reduced total arrests by 28 percent at the end of the program in study 1 and by 35 percent at the end of the program in study 2. Violent crime arrests decreased by 45 percent in study 1 and 50 percent in study 2. (See table 1 and 2 below.)

Table 1. Becoming a Man Study 1 – Effect on youth outcomes

BAM study 1	Effect of participation	Mean values Control group
School engagement	0.1367*** (0.0511)	0.222
Total arrests per youth per year	-0.1869* (0.1087)	0.672
Violent	-0.0829** (0.0394)	0.186
Property	0.0116 (0.0303)	0.066
Drug	0.0032 (0.0422)	0.097
Other	-0.1188* (0.0648)	0.323

Notes: Effects at the end of the program (i.e., year 1). Baseline covariates and randomization block fixed effects included in all models. Heteroscedasticity-robust standard errors are in parentheses. School engagement is an index equal to an unweighted average of days present, GPA, and enrollment status at end of school year, all normalized to Z-score form using control group's distribution. The stars indicate significance levels, where * p<0.10, ** p<0.05, *** p<0.001. The rightmost column shows mean values for people in the control group who complied with the randomization, i.e., did not participate in the program.

Table 2. Becoming a Man Study 2 – Effect on youth outcomes

BAM study 2	Effect of participation	Mean values Control group
School engagement	0.0993** (0.0490)	0.081
Total arrests per youth per year	-0.1670** (0.0771)	0.471
Violent	-0.0549* (0.0303)	0.110
Property	-0.0036 (0.0197)	0.062
Drug	-0.0292 (0.0335)	0.115
Other	-0.0793* (0.0434)	0.183

Notes: Effects at the end of the program (i.e., year 2). Baseline covariates and randomization block fixed effects included in all models. Heteroscedasticity-robust standard errors are in parentheses. School engagement is an index equal to an unweighted average of days present, GPA, and enrollment status at end of school year, all normalized to Z-score form using control group's distribution. The stars indicate significance levels, where * p<0.10, ** p<0.05, *** p<0.001. The rightmost column shows mean values for people in the control group who complied with the randomization, i.e., did not participate in the program.

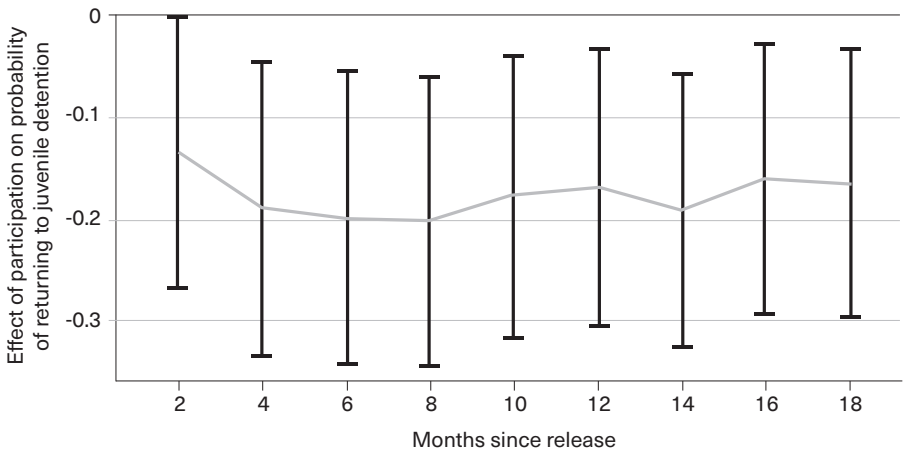
Effects on property crime arrests, drug crime arrests, and other types of arrests were less precisely estimated and not all were statistically significant. The program may also have had some spillover effects (i.e., students in the treatment group spreading the program content to students in the control group). However, any spillover effects would only serve to, if anything, underestimate the true effect of the program.

Results of Study 3

CRIMINAL BEHAVIOR

We estimate the effect of the program on future readmission to the JTDC at different points in time following release from the JTDC. The effect of the program on readmission over time is shown in Figure 1. Two months after release, readmission to the JTDC was about 39 percent lower for the treatment group compared to the control group. At 18 months after the release, the readmission rate was about 21 percent lower for the treatment group compared to the control group. Put differently, the treatment increased the chances of not being readmitted to the JTDC by fully 80 percent. Although the confidence intervals are quite large, the pattern is clear: the probability of returning to the juvenile detention center is lower for those who participated in the program.

Figure 1. The effect of treatment (Study 3) on the probability of returning to the juvenile detention center.



Notes: The effect of participation on readmission to the juvenile detention center, Study 3. Sample consists of the *N*=2,693 youth admitted to the Cook County JTDC during period when random assignment was in effect, and for whom we have at least 18 months of follow-up data. Graph shows effects conditional on baseline covariates, with day-of-admission fixed effects. The vertical error bars represent 95% confidence intervals. Mean in control group is control complier mean.

Spending more time on decision-making

Many theories about what determines life outcomes, such as self-control, conscientiousness, "grit"[8], emotional intelligence, social skills, support from adults, and an understanding of the returns to education, are not fully able to explain how this intervention had such large effects on participant behavior. When we surveyed students in the Chicago Public School system, including youth in our first BAM study, our results suggested that these mechanisms only account for a small share of the program effects.[9] We can also rule out that the effects of the programs were only due to incapacitation (keeping youth busy while in the program).[10] What else might explain the program's efficacy?

AUTOMATIC RESPONSES

To find out more about the mechanism behind the results, we turn to the research on automaticity, which shows that people often rely on automatic responses to situations rather than using deliberate thinking.[11] We all make automatic assumptions and develop automatic responses to situations that we frequently find ourselves in. Sometimes these automatic assumptions are wrong or we apply our automatic responses to a situation that doesn't call for it[12]. Our hypothesis for why the programs that we study help reduce violence involvement is that they help youth to slow down and examine their automatic assumptions.

To test this theory, we conduct a decision-making exercise with youth from study 2. The exercise prompts students to think they have been provoked by another student; they then get the chance to respond. If automaticity is the underlying mechanism for our results, then treated students (those participating in BAM) should spend more time thinking before responding compared to students in the control group (who did not participate in BAM). Consistent with our hypothesis, BAM participants spent 80 percent more time thinking through their decision than those in the control group. They literally slowed down their decision-making.

Conclusions

"Helping youth think more carefully about their automatic responses can lead to decreased violence involvement while improving schooling outcomes."

In this brief, I've presented the results of three large-scale randomized controlled trials evaluating programs that slow down youth decision-making. Our results show that helping youth think more carefully about their automatic responses can lead to decreased violence involvement while improving schooling outcomes.

In the first two RCTs, BAM reduced total arrests and violent crime arrests as well as increased school engagement and graduation rates. The third program, which was similar to BAM and carried out in a juvenile temporary detention center, significantly reduced readmission rates.

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8. Courage and determination despite difficulty.

9. We estimate treatment effects on these potential mediators and the relationship between mediators and outcomes.

10. The effect of BAM was not concentrated on daays with after-school programs.

11. Kahneman (2011).

12. Ross and Nisbett 2011.

Importantly, the programs are relatively low-cost (less than $2,000 per participant) and for every $1 spent, yield $5-$30 of social benefit, depending on how we measure the costs of crime. These benefit-cost ratios are competitive with, or even sometimes larger than, many of the traditional social policy interventions that try to change the long-term benefits of schooling or costs of crime.

The remaining challenge for these behavioral science interventions, shared with so many other policy interventions, is that of scale. As these interventions expand and reach larger numbers of people, there is some indication that there could be a loss to some degree of implementation fidelity and some diminishing returns in social impacts (Bhatt et al. 2021). Figuring out how to successfully scale up promising policies remains a top priority for both social science researchers and policymakers; the main contribution of the research reported here is to highlight a new type of policy that, based on these proof-of-concept results, seems promising enough to warrant figuring out how to successfully scale.

As one JTDC staff member told us, "20 percent of our residents are criminals; they will harm other people if they are not locked up. But the other 80 percent, I always tell them: if I could give you back just 10 minutes of your lives, you wouldn't be here". These programs are evidence that it's possible to give youth those crucial ten minutes back.

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